



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,042	12/30/2003	Wang Yuch	42P18259	9165

8791 7590 12/14/2004

BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BOULEVARD
SEVENTH FLOOR
LOS ANGELES, CA 90025-1030

EXAMINER

WALKE, AMANDA C

ART UNIT PAPER NUMBER

1752

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/750,042

Applicant(s)

YUEH ET AL.

Examiner

Amanda C Walke

Art Unit

1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Yoon et al (6,800,418).

Yoon et al disclose a fluorine – containing photosensitive polymer having hydrate structure and resist composition comprising the same. The photosensitive polymer having a structure to give a high transmittance at a F₂ excimer laser wavelength of 157 nm and good adhesion to an underlayer. It is another object of the present invention to provide a resist composition allowing development with conventional developers and having a high transmittance at a F₂ excimer laser wavelength of 157 nm (UV) , good hydrophilicity, and good adhesion to an underlayer. According to an aspect of the present invention, a photosensitive polymer is provided having an average molecular weight of about 3,000-100,000 with a repeating unit including a structure meeting the instant claim limitations (see columns 4-10). The composition comprises a photoacid generator and it is preferable that the resist composition according to an embodiment of the present invention further comprises an organic base. In this case, the organic base may be contained in an amount of about 0.01-2.0% by weight based on the total weight of the photosensitive polymer. Preferably, the organic base comprises a single

Art Unit: 1752

tertiary amine compound or a mixture of at least two ternary amine compounds. For example, the organic base may be triethylamine, triisobutylamine, triisooctylamine, triisodecylamine, diethanolamine, triethanolamine, or a mixture of these compounds.

It is preferable that the resist composition according to an embodiment of the present invention further comprises a surfactant of about 30-200 ppm. It is preferable that the resist composition according to an embodiment of the present invention further comprises a dissolution inhibitor of about 0.1-50% by weight based on the total weight of the photosensitive polymer. The composition is employed in a method comprising the steps of : dissolving the polymer with triphenylsulfonium trifluoromethanesulfonate (triflate) as a photoacid generator (PAG) and triisodecylamine as an organic base. Each of the resist compositions was coated on a silicon wafer having an organic anti-reflective coating (ARC) to a thickness of about 0.15 microns. Each of the wafers coated with different resist compositions was soft-baked at a temperature of 100-140 degrees C for 60 seconds and exposed using an F₂ excimer laser stepper (NA=0.6). After the exposure process, the wafer was subjected to post-exposure bake (PEB) at a temperature of 110-140 degrees C for 60 seconds. The resultant wafer was subjected to development with a 2.38% by weight tetramethylammonium hydroxide (TMAH) solution, to form a resist pattern

Given the teachings of the reference, the instant claims are anticipated by Yoon et al.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Jung et al (6,391,518) and Harada et al (2003/0219678) are cited for their teachings of similar polymers.

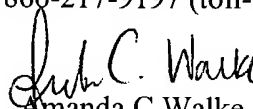
Art Unit: 1752

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amanda C Walke whose telephone number is 571-272-1337.

The examiner can normally be reached on M-R 5:30-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Amanda C Walke
Examiner
Art Unit 1752

ACW
December 13, 2004